Saraswati Education Society's Saraswati College of Engineering, Kharghar Information Technology Department Academic Year 2014-15(Odd Sem) <u>Unit Test-1</u>

Class/Sem: Second Year/ III		Subject: Applied Mathematics	
Date: 26/08/2014	Duration: 1 Hrs.	Marks: 20	

Q.1]: Solve any 4. [2 marks each]

- 1]: Prove that the points (2,1,1), (0,1,-3), (3,2,-1) and (7,2,7) are coplanar.
- 2]: If $\phi = xz^2 5yz + xz$ find $\nabla \phi$ at (1,-1, 2).
- 3]: $\overline{F} = (x^2 yz)i + (y^2 xz)j + (z^2 xy)k$, find Div \overline{F} .
- 4]: Find a_0 (coefficient of Fourier series) for the function $f(x) = e^{-x}$ in $0 < x < 2\pi$.
- 5]: What are the parseval identity for (0,2L), *ao*, *an*, *bn*.

Q .2]: Solve any 2. [05M]

- 1]: Find the Fourier series for $f(x) = x^2$ in the interval $(-\pi, \pi)$
- 2]: If $\overline{F} = (x + 2y + az)i + (bx 3y z)j + (4x + cy + 2z)k$ is irrotational, find the constants a,b,c.
- 3]: Expand $f(x) = x \sin x$ in the interval $(0, 2\pi)$.

[08M]

[12M]

Saraswati Education Society's Saraswati College of Engineering, Kharghar Information Technology Department Academic Year 2014-15(Odd Sem) <u>Unit Test-1</u>

Class/Sem: Second Year/ III	Subject: Data Structures an	d Algorithm Analysis
Date: 26/08/2014	Duration: 1 Hrs.	Marks: 20
Q.1]: Attempt any 5.		[5M*2M] = [10M]
I]: Define Linked List and its ty	ypes.	
II]: Define a Stack and its applic	cations.	
III]: Define Expression tree with	an example.	
IV]: Define Dequeue and its typ	es.	
V]: Define Circular Linked List	with an example.	
VI]: Define a Sparse matrix with	n an example.	
Q.2]: Attempt any 1.		[1M*5M] = [05M]
I]: Write a C Program to impler	nent at least 3 Queue operations.	
II]: Define a Binary Tree and its	traversing techniques with an examp	le.
Q.3]: Attempt any 1.		[1M*5M] = [05M]

I]: Write an algorithm to convert infix to postfix and solve the example(P+Q)*R

II]: Explain about P-word with an example in a detailed manner

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Saraswati College of Engineering, Kharghar

Information Technology Department

Academic Year 2014-15(Odd Sem)

<u>Unit Test-1</u>

Class/Sem: Second Year / III	Subject: Analog &	Digital Circuit
Date: 27/08/2014	Duration: 1 Hrs.	Marks: 20

Note: Q.1 is Compulsory & Solve any one from Q.2 & Q.3.

Q.1]: a]: Explain why NOR gate is called universal gate?	[02M]
b]: Convert the following binary numbers to decimal, Hexadecimal, Octal f	orm
i]: (101111.1101) ₂ ii]: (11011111.100101) ₂	[04M]
c]: Realise following using only NAND gates Y= (AB+BC) C	[02M]
d]: Convert (33.426) ₁₀ into BCD, Excess-3	[02M]
e]: Minimize the following logic function using k-map	[02M]
F(A,B,C,D)=IIM (4,6,10,12,13,15)	
Q.2]: a]: Implement the following function using 8:1 MUX	
$f(A,B,C,D) = \sum m(2,4,5,7,10,15)$	[05M]
b]: Design Full Adder using gates	[05M]
Q.3]: a]: Given the logic expression AB+AC+C+AD+ABC+ABC	[05M]
Express in standard SOP form. Draw K-map for equation and realized i	t using
NAND gates.	
b]: Design BCD to Excess-3 code converter	[05M]

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Saraswati College of Engineering, Kharghar

Information Technology Department

Academic Year 2014-15(Odd Sem)

<u>Unit Test-1</u>

Class/Sem: Second Year / III	Subject: Object Oriente	d Programming Methodology
Date: 27/08/2014	Duration: 1 Hrs.	Marks: 20
Q.1]: Attempt any five.		[05M]*[02M]=[10M]
a]: Write a method to convert ma	trix to identity matrix.	
b]: Write major two differences b	between	
i]: C and JAVA		
ii]: C++ and JAVA		
c]: Write a method to find Fibona	acci series.	
d]: Write any four classes with a	ppropriate data and method section	n for library
Mngt. System case study.		
e]: Find the O/P		
Int main()		
{		
Int a[5]={5,1,15,20,25};		
Int I,j,m;		
I =++a[1];		
J =a[1]++;		
m =a[i++];		
System.out.println("the valu	ues of I, and k are"+I+" "+j+" "+k	x+);
Return 0;		
}		
f]: Define method overloadind ,l	list types .	
Q.2]:		[02M]*[05M]=[10M]
a]: Explain constructor and destr	ructor in object oriented programn	ning.
b]: Write a program to find dupl	icates from 1 to n input integers.	
	Or	
Q.3]: a]: WAP to get following * patt	ern	[02M]*[05M]=[10M]

- * * * * *
- b]: WAP to get factorial matrix from corresponding [3][3] square matrix. Note if a[10]=2,a[11]=3 and a[12]=4 then factorial matrix's a[10]=2, a[11]=6 and a[12]=24....

Saraswati Education Society's

Saraswati College of Engineering, Kharghar

Information Technology Department

Academic Year 2014-15(Odd Sem)

<u>Unit Test-1</u>

Class/Sem: Second Year/ III Subject: Data Base Manageme		gement System
Date: 28/08/2014	Duration: 1 Hrs.	Marks: 20
Q.1]: Define the following. [Any 5	5]	[05M]
a]: Foreign key.		
b]: Weak entity set.		
c]: Composite attribute.		
d]: Rename operation in relation	nal algebra.	
e]: Mapping cardinalities.		
f]: degree of a relationship.		
Q.2]:		
a]: Explain natural join and type	es of outer join with the help of example.	[10M]
b]:What are the drawbacks of th	e traditional file system.	[05M]
Q.3]:		
a]: Explain the steps involved	in mapping of E-R/EER diagram to relation	al model.
		[10M]

a]: What are the types of users involved in DBMS.	[05M]
aj. That are the types of asers involved in DDMD.	

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Class/Sem: Second Year/ III	Subject: Principal of Communication	
Date: 28/08/2014	Duration: 1 Hrs.	Marks: 20

[10M]

[05M]

Note: Q.1 is Compulsory.

Q.1]: Attempt any 5.

- a]: Explain friss transmission formula.
- b]: Define Selectivity.
- c]: Define Sensitivity.
- d]: Shot noise and Equivalent noise temperature.
- e]: Define noise &list the type of noise.
- f]: List the disadvantage of of tuned RF receiver.

g]: Write mathematical expression of AM modulated wave and draw the AM envelope and

Spectrum.

Q.2]: a]: Expalin balanced modulator using FET's.

Or

Q.2]: a]: An amplitude modulated waveform has a form.

 $Xc(t)= 10 \cos 2000 \pi t (1+0.6 \cos (2000 \pi t +0.4 \cos 400 \pi t)).$

- [i]: Sketch the amplitude spectrum of Xc(t).
- [ii]: Find the power content of each spectral component including carrier.
- [iii]: Find total power and sideband power.
- [iv]: What is modulation index.

Q.3]: Draw the ckt of superhetrodyne receiver and explain the same. [05M]

Or

- Q.3]: State and prove the following properties of fourier transform.
 - [i]: Time Shifting.